CLAIMS:

1.   A method for correcting a color image, the method comprising the steps of:
correcting the gamut of the color image; and
smart clipping the corrected image by "adding white" to out-of-gamut digital data of
the color image.

2.   The method of claim 1, wherein the smart clipping step of "adding of white"
further comprises the step of scaling with the brightness of digital data having dark digital data
get less white added than bright digital data.

3.   The method of claim 1, further comprising the step of reducing overall
brightness of the color image.

4.   The method of claim 3, wherein said reducing step further comprises the step of
multiplying digital image data of the color image by a fixed value of 0.85.

5.   The method of claim 3, wherein said reducing step further comprises the step of
determining the reduction as a function of an input gamut and a display gamut.

6.   The method of claim 3, wherein said reducing step further comprises the step of
determining the reduction as a function of a saturation of the incoming signal.

7.   The method of claim 6, wherein said function is 0 when the saturation is equal
to 0, maximal when the saturation greater than 0.75, and equal to a monotonically increasing
function as a function of the saturation when the saturation is in the range between 0 and 0.75.

8.   The method of claim 1, further comprising the steps of:
optionally performing a gamma correction on the digital image data before the step of
correcting the gamut; and

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if needed, performing an inverse gamma correction on the smart clipped image.

9.   The method of claim 8, further comprising the step of reducing the overall brightness of the color image.

10.   The method of claim 9, wherein said reducing step further comprises the step of determining the reduction as a function of a saturation of the incoming signal.

11.   The method of claim 10, wherein said function is 0 when the saturation is equal to 0, maximal when the saturation greater than 0.75, and equal to a monotonically increasing function as a function of the saturation when the saturation is in the range between 0 and 0.75.

12.   An apparatus for primary color correction and clipping, comprising:

a means for receiving digital data of a color image having a source gamut;

a display having a display gamut;

one of a program memory storing and a calculation logic device providing-

         (i)   a plurality of algorithms, that includes smart clipping algorithms, for
         mapping the source gamut to the display gamut, and

         (ii)   a multi-step 'smart' clipper module that executes the plurality of
         algorithms for mapping the source gamut to the display gamut; and

a controller/processing unit configured to -

         control receipt of the digital data,

         execute the 'smart' clipper module to accomplish mapping the source gamut to
the display gamut for the received digital data, and

         output the mapped digital data to the display.

13.   The apparatus of claim 12, further comprising a storage device for storing received digital data and output digital data of a color image.

14.   The apparatus of claim 13, wherein the plurality of algorithms comprises:

optionally executable gamma correction algorithms;

gamut mapping algorithms to reduce brightness of digital data of a color image;

smart clipping algorithms to correct digital data of a color image by "adding white" to out-of-gamut digital data of the color image; and

saturation dependent attenuation algorithms.

15.   The apparatus of claim 13, wherein the smart clipping algorithms further comprise magnifying the clipping effect based on intensity of digital data of the color image.

16.   The apparatus of claim 12, wherein the plurality of algorithms comprises:

optionally executable gamma correction algorithms;

gamut mapping algorithms to reduce brightness of digital data of a color image;

smart clipping algorithms to correct digital data of a color image by "adding white" to out-of-gamut digital data of the color image; and

saturation dependent attenuation algorithms.

17.   The apparatus of claim 16, wherein the smart clipping algorithms further comprise magnifying the clipping effect based on intensity of digital data of the color image.

18.   A 'smart' clipper apparatus for primary color correction and clipping, comprising:

a plurality of algorithms, that includes smart clipping algorithms, for mapping a source gamut to a display gamut, and

a multi-step 'smart' clipper module that executes said plurality of algorithms.

19.   The 'smart' clipper apparatus of claim 18, wherein the plurality of algorithms comprises:

optionally executable gamma correction algorithms;

gamut mapping algorithms to reduce brightness of digital data of a color image;

smart clipping algorithms to correct digital data of a color image by "adding white" to out-of-gamut digital data of the color image; and

saturation dependent attenuation algorithms.

20.   The 'smart' clipper apparatus of claim 19, wherein the smart clipping algorithms further comprise magnifying the clipping effect based on intensity of digital data of the color image.

21.   A computer readable medium, comprising computer instructions for:

a plurality of algorithms, that includes smart clipping algorithms, for mapping a source gamut to a display gamut, and

a multi-step 'smart' clipper module that executes said plurality of algorithms.

22.   The computer readable medium of claim 21, wherein said plurality of algorithms further comprises computer instructions for:

optionally executable gamma correction algorithms;

gamut mapping algorithms to reduce brightness of digital data of a color image;

smart clipping algorithms to correct digital data of a color image by "adding white" to out-of-gamut digital data of the color image; and

saturation dependent attenuation algorithms.

23.   The computer readable medium of claim 22, wherein the smart clipping algorithms further comprise magnifying the clipping effect based on intensity of digital data of the color image.